

REMARKS

I. Formalities

Applicant thanks the Examiner for considering the references cited with the Information Disclosure Statement filed on April 1, 2005.

However, Applicant notes that the Examiner failed to acknowledge the claim for priority under 35 U.S.C. § 119, and receipt of the certified copy of the priority document submitted on February 18, 2005. Accordingly, Applicant respectfully requests that the Examiner acknowledge Applicant's claim for priority and receipt of the aforementioned priority document.

Additionally, Applicant notes that the Examiner did not indicate whether the Formal Drawings filed on February 18, 2005 are accepted. Thus, Applicant respectfully requests that the Examiner acknowledge and approve the aforementioned Formal Drawings.

II. Status of the Application

By the present amendment, Applicant hereby adds claims 5 and 6 to more fully cover various implementations of the invention. Claims 1-6 are all the claims pending in the Application. Claims 1-4 have been rejected.

The present amendment addresses each point of objection and rejection raised by the Examiner. Favorable reconsideration is respectfully requested.

III. Claim Rejections Under 35 U.S.C. § 103

The Examiner has rejected claims 1-4 under 35 U.S.C. § 103 (a) as being unpatentable over Japanese Patent No. JP 2002079803 to Teratani (hereinafter "Teratani"), and further in view

of either one of U.S. Patent No. 4,193,437 to Powell (hereinafter “Powell”) or U.S. Patent No. 4,837,266 to Sattelmeyer (hereinafter “Sattelmeyer”). Applicant respectfully traverses these rejections for *at least* the reasons stated below.

In order for the Examiner to maintain a rejection under 35 U.S.C. §103, Teratani, Powell, Sattelmeyer, or some combination thereof, must teach or suggest all of the recitations of claims 1-4. Applicant respectfully submits that neither Teratani, Powell, Sattelmeyer, nor any combination thereof, teaches or suggests all of the recitations of claims 1-4.

A. Independent Claim 1

The Examiner alleges that Teratani discloses many of the features recited in claim 1, but acknowledges that Teratani fails to teach or suggest the feature of the inclusion of a resin and a curing agent, as recited in claim 1. Nevertheless, the Examiner alleges that a resin and a curing agent are additives which are well recognized as being methylene acceptors (resin) and methylene donors (curing agent) and that they are extensively used in a wide variety of tire rubber compositions in order to provide improved mechanical properties (e.g., modulus and tensile strength), as shown for example by column 5, lines 20-30 of Powell and by column 1, lines 10-35 of Sattelmeyer. In particular, the Examiner alleges that the relevant composition taught in Powell is a sidewall insert which is analogous to the claimed invention, and that the relevant compositions of Sattelmeyer are tire compositions that experience large amounts of dynamic deformation (well recognized as including runflat inserts).

Additionally, the Examiner alleges that one of ordinary skill in the art would have found it obvious to include the additives taught in Powell or Sattelmeyer in the composition of Teratani

because they are recognized as constituting well known and conventional additives that are included in a wide variety of tire rubber compositions. Moreover, the Examiner alleges that methylene acceptors (e.g., phenol resin) and curing agents (e.g., HMMM or HMT) represent well known and conventional additives that are used in a variety of tire compositions in order to, among other things, provide improved mechanical properties.

The Examiner acknowledges that the results of Table 1 and Comparative Example 2 suggest that the inclusion of a phenol resin and two types of curing agents provides improved elastic modulus and dynamic modulus and ultimately improved runflat durability. However, the Examiner alleges that the prior art had previously recognized the benefits of improved mechanical properties, such as modulus, due to the inclusion of additives such as resins and curing agents in the tire rubber compositions. As such, the Examiner alleges that Table 1 of the present specification does not provide a conclusive showing of “unexpected results” and that therefore the results of Table 1 are not seen to be persuasive.

Applicants respectfully disagree with the grounds of rejection. Independent claim 1 requires (among other things):

...and the rubber composition contains a resin and a curing agent therefor in a total amount of 3 mass parts or more per 100 mass parts of the rubber and has an elastic modulus of 5 to 20 MPa in 100 % elongation at 25°C and a dynamic elastic modulus of 10.5 MPa or less at a room temperature.

The Examiner admits that the all of the cited references fail to expressly disclose values for the parameters of elastic modulus and dynamic modulus. But, the Examiner alleges that one

of ordinary skill in the art would have expected the composition of Teratani, in view of the teachings of either Powell or Sattelmeyer, to exhibit an elastic modulus of 5 to 20 MPa in 100 % elongation at 25°C and a dynamic elastic modulus of 10.5 MPa or less at a room temperature. Applicants disagree.

The invention recited in claim 1 is directed to a non-obvious tire configuration which exhibits (among other things) excellent durability in running after the tire is injured and which exhibits a vibration running comfort during normal use. To achieve these advantages, and others, the tire recited in claim 1 comprises a specific rubber composition constituting a bead filler which exhibits both a high elastic modulus (i.e., an elastic modulus of 5 to 20 MPa in 100 % elongation at 25°C) and a low dynamic elastic modulus (i.e., a dynamic elastic modulus of 10.5 MPa or less at a room temperature). For instance, as recited in claim 1, a combination including (among other things) a conjugate diene base polymer having a high vinyl bonding amount and a curable resin with a curing agent can achieve the above moduli properties.

The Examiner acknowledges that, in stark contrast to the recitations in claim 1, Teratani fails to teach or suggest the feature of the inclusion of a resin and a curing agent. Indeed, Comparative Example 2 in Table 1 of the present specification is similar to the teachings of the compositions in Teratani. And, as shown in Table 1, the Comparative Example 2 exhibits a low elastic modulus in 100% elongation and a low dynamic elastic modulus, which results in poor run flat durability.

In further contrast to the requirements of claim 1, Powell teaches a inner sidewall composition having about 50 to about 95 parts by weight of one elastomer (i.e., natural rubber

and/or cis-polyisoprene), and about 5 to about 50 parts by weight of another elastomer (i.e., styrene-butadiene or cis-polybutadiene), and small quantities of resorcinol and hexamethylene tetramine. (Column 4, lines 16-24; column 5, lines 13-30). However, in contrast to claim 1, the styrene-butadiene or cis-polybutadiene taught in Powell has a low vinyl bonding amount.

Moreover, if a skilled artisan were to modify the teachings of Powell by replacing the resorcinol with a phenol based resin, as claimed, the resulting composition of the inner sidewall layer would be similar to Comparative Example 3, as shown in Table 1 of the present specification. However, as shown by the present specification, the composition of Comparative Example 3 exhibits a high elastic modulus in 100% elongation and exhibits a high dynamic elastic modulus, which results in poor riding comfort.

In further contrast to claim 1, Sattelmeyer teaches that the use of curable phenolic resin systems in rubber mixtures has the effect of improving certain important mechanical properties of the vulcanizates, such as, for example, the stress moduli, and also increasing the hardness. However, Sattelmeyer does not provide any teaching or suggestion whatsoever regarding improving an elastic modulus in 100% elongation and a dynamic elastic modulus, as recited in claim 1.

Applicant vigorously disagrees with the Examiner's baseless assertion that, despite the clear fact that none of the cited references teach values for the parameters of elastic modulus and dynamic modulus, a skilled artisan would nevertheless somehow have expected the composition of Teratani, in view of the teachings of either Powell or Sattelmeyer, to exhibit an elastic

modulus of 5 to 20 MPa in 100 % elongation at 25°C and a dynamic elastic modulus of 10.5 MPa or less at a room temperature.

Indeed, the grounds of rejection have not provided a shred of evidentiary support for this bald assertion. However, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). This burden can only be satisfied by an objective teaching in the prior art or by cogent reasoning that the knowledge is available to one of ordinary skill in the art. *In re Lulu*, 747 F.2d 703, 223 USPQ 1257 (Fed. Cir. 1984). Otherwise, unsupported statements and conclusions of obviousness are considered inadmissible hindsight. *See, e.g., In re Geiger*, 2 USPQ2d 1276 (Fed. Cir. 1987), *Panduit Corp. v. Dennison Mfg. Co.*, 1 USPQ2d 1593 (Fed. Cir. 1987), *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), *Ex parte Clapp*, 227 USPQ 972 (Pat. Off. Bd. App. & Inter. 1985), *Ex parte Shepard and Gushue*, 188 USPQ 537 (Pat. Off. Bd. App. 1974).

Since the grounds of rejection have failed to provide any evidentiary support for the assertion that a skilled artisan would have expected a combination of the cited references to exhibit the specific features recited in claim 1, Applicant submits that these rejections are without legal basis for *at least* these reasons.

What is more, contrary to the Examiner's assertions, Applicant submits that one of ordinary skill would not have expected the composition of Teratani, in view of the teachings of either Powell or Sattelmeyer, to exhibit an elastic modulus of 5 to 20 MPa in 100 % elongation at 25°C and a dynamic elastic modulus of 10.5 MPa or less at a room temperature, as claimed. Quite to the contrary, Applicant submits that, generally speaking, a skilled artisan would

recognize that in ordinary rubber compositions, when a dynamic elastic modulus is high, a corresponding elastic modulus in 100% elongation will also be high.

In contrast, claim 1 recites the feature of a rubber composition that exhibits both a high elastic modulus (i.e., an elastic modulus of 5 to 20 MPa in 100 % elongation at 25°C) and a low dynamic elastic modulus (i.e., a dynamic elastic modulus of 10.5 MPa or less at a room temperature). Therefore, the claimed invention achieves new and unexpected results nowhere suggested in the prior art and Applicant submits that the Examiner has overlooked this achievement contrary to the requirements of MPEP §2141.

Accordingly, since neither Teratani, Powell, Sattelmeyer, nor any combination thereof, teaches or suggests the feature of a rubber composition containing a resin and a curing agent therefor in a total amount of 3 mass parts or more per 100 mass parts of the rubber and has an elastic modulus of 5 to 20 MPa in 100 % elongation at 25°C and a dynamic elastic modulus of 10.5 MPa or less at a room temperature, Applicant submits that claim 1 is patentable over the cited references for *at least* these reasons. Further, Applicant submits that claims 5-6 are patentable *at least* by virtue of their dependency on claim 1. Thus, Applicant respectfully requests that the Examiner withdraw these rejections.

B. Independent Claim 2

Independent claim 2 recites (among other things):

...and the rubber composition contains a resin and a curing agent therefor in a total amount of 3 mass parts or more per 100 mass parts of the rubber and has an elastic modulus of 5 to 20 MPa in 100 % elongation at 25°C and a dynamic elastic

modulus of 10.5 MPa or less at a room temperature.

In view of the similarity between these requirements and the requirements discussed above with respect to independent claim 1, Applicant respectfully submits that arguments analogous to the foregoing arguments as to the patentability of independent claim 1 demonstrate the patentability of claim 2. As such, it is respectfully submitted that claim 2 is patentably distinguishable over the cited references *at least* for reasons analogous to those presented above. Thus, the allowance of this claim is respectfully solicited of the Examiner.

C. Independent Claim 3

Independent claim 3 recites (among other things):

...the rubber composition contains a resin and a curing agent therefor in a total amount of 3 mass parts or more per 100 mass parts of the rubber and has an elastic modulus of 5 to 20 MPa in 100 % elongation at 25°C and a dynamic elastic modulus of 10.5 MPa or less at a room temperature.

In view of the similarity between these requirements and the requirements discussed above with respect to independent claim 1, Applicant respectfully submits that arguments analogous to the foregoing arguments as to the patentability of independent claim 1 demonstrate the patentability of claim 3. As such, it is respectfully submitted that claim 3 is patentably distinguishable over the cited references *at least* for reasons analogous to those presented above. Thus, the allowance of this claim is respectfully solicited of the Examiner.

D. Multiple Dependent Claim 4

Claim 4 depends from claims 1, 2 or 3. Thus, Applicant submits that the multiple dependent claim 4 is allowable *at least* by virtue of its dependency.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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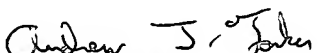
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Date: August 29, 2006